DIGITAL GOVERNMENT

Program Announcement

DIRECTORATE FOR COMPUTER AND INFORMATION SCIENCE AND ENGINEERING

Division of Experimental and Integrative Activities

Deadline Dates for Submission:
September 1, 1998, March 1 each year thereafter

NATIONAL SCIENCE FOUNDATION

INTRODUCTION

The Federal government is a major user of information technologies, a collector and maintainer of very large data sets, and a provider of critical and often unique information services to individuals, states, businesses, and other customers. The goal of the Digital Government Program is to fund research at the intersection of the computer and information sciences research communities and the mid- to long-term research, development, and experimental deployment needs of the Federal information service communities. The Internet, which was created from a successful partnership between Government agencies and the information technologies research community, is a major motivating factor and context for this program.

The coming decade will see the potential for nearly ubiquitous access to government information services by citizen/customers using highly capable digital information/entertainment appliances. Given the inexorable progress toward faster computer microprocessors, greater network bandwidth, and expanded storage and computing power at the desktop, citizens will expect a government that responds quickly and accurately while ensuring privacy. Enhancements derived from new information technology-based services can be expected to contribute to reinvented and economical government services, and more productive government employees. As society relies more and more on network technologies, it is essential that the Federal Government make the most effective use of these improvements.

There is an immediate opportunity for the broad connection of information services providers and research communities, in an arena drawing heavily on the challenging and unique requirements of the Federal sector, to speed innovation and development, deployment, and application of more advanced technologies into usable systems. By supporting mid- to long-term research, development, and experimental deployment, fundamental limitations encountered in applying information technology to the Federal information services domain can begin to be addressed. Research that considers real world operating constraints can provide valuable new problems and insights for the academic research domain, while demonstrating pilot systems with new capabilities for Federal agencies. Such research can contribute to a long-term transition strategy for migrating Federal information services from legacy systems, through interoperable systems of the Internet, toward advanced integrated global systems.

Within this context, the objective of the Digital Government Program is to support projects that innovatively, effectively, and broadly address through research the potential improvement of agency, interagency, and intergovernmental operations and/or government/citizen interaction. Such research is expected to enable the generation and use of a continuous stream of advanced information technologies for early adoption and integration into the Federal information systems community.

POTENTIAL RESEARCH TOPICAL AREAS AND TECHNOLOGIES

Examples of project areas are listed below to suggest the types of activities envisioned for this Program. *Even though two sample domains are used in several of these examples (i.e., Federal statistics and emergency management), these are illustrative and do not imply any priority for them.*

I. Intelligent Information Integration

This topic includes techniques to define, design and maintain shared ontologies, or the means of mediating queries among multiple data and information sources which may contain heterogeneous or incongruent data. Also included are collaboration tools for network based information systems to allow widely distributed groups of citizens or government personnel to collaborate and interact remotely to achieve common goals; adaptive planning environments. Examples are:

- Automated “content” searching to generate indices, with formal ontologies of available Federal statistical data and their meaning, and access methods.
- Automated formal processes assisting and guiding emergency managers to locate, access and effectively use available data and information resources.

II. Very large scale data and information acquisition and management for geospatial and multidimensional data

Technologies to cost-effectively acquire, integrate and view geographic, biological, environmental, social, and economic data and meta-data of all types. Examples are:

- “Uniform” access to linked statistical data sources in the 70+ agencies that gather statistics and disseminate this information across multiple sectors;
- A master USA data source index for rapid culling together of data for emergency managers dealing with crises and critical emergencies in the field;

III. Advanced analytics for large datasets/ information collections

Infrastructure to allow the broadest range of analysis techniques to be applied to user selected views and visualization of very large data and information sources. Examples are:

- Data mining facilities and computing utility services for citizens to compute models of online statistical data sources;

- Information-on-demand services for emergency management which present only the information needed to avoid information overload.

IV. Electronic transaction and electronic commerce technologies

Common transaction media between government and the citizenry; successful migration strategies from batch-oriented transactions to scaleable and efficient on-line systems; security and authentication mechanisms to maintain the highest levels of privacy. Examples are:

- Electronic Service Delivery via WWW and distributed kiosks at public sites, any-time processing allowing citizens to process benefits inquiries and requests electronically.
- Demonstrations of new security capabilities based upon novel means of detecting fraud or unauthorized access and use of information.

V. Information services for citizen/customers

Human computer interactions (e.g., human-centered factors), visualization and presentation technologies to accommodate the widest range of interaction environments and modalities, multimedia objects, tools sets and user's needs and requirements. Examples are:

- Kiosk-based access for multiple service delivery;
- A Computing Services Utility allowing the citizenry remote access to data and computational resources and enabling its processing from publicly available computing appliances.

VI. Research in the Application of Information Technology to Federal Law and Regulation

The application of R&D in information technology to the implementation of Federal law, policy and regulation, such as:

- Archiving and record keeping
- Authentication of documents
- Privacy e.g. reliable identification of individuals, journaling of access and access control
- Systems to support the regulatory process, e.g. collection and synthesis of public commentary

Relevant laws and regulations might include, but are not limited to: Computer Security Act of 1987, Copyright Act of 1976, Federal Records Act, National Archives and Records Administration Regulations, Freedom of Information Act, Information Technology Management Reform Act of 1996, Paperwork Reduction Act of 1995, Privacy Act, Americans with Disabilities Act of 1990 and the Rehabilitation Act Amendments of 1992.

VII. Examples of other cross-agency topical and technical areas and related activities

Digital government projects may relate to a variety of NSF activities such as those listed below. Further information on CISE program areas dealing with these may be found at http://www.cise.nsf.gov

- Partnerships for Advanced Computational Infrastructure
- High-speed Networking Access and Applications
- Computation and Social Systems
- Human Computer Interaction
- Knowledge and Cognitive Systems
- Software Engineering
- Information and Data Management
- Educational Innovation
- Knowledge and Distributed Intelligence

On-line information on NSF programs in general may be found at http://www.nsf.gov

Examples of other cross-agency domain areas include:

- Electronic grant administration
- Financial systems (e.g. real-time intrusion alerts, data-mining for patterns of abuse, access journaling)
- Geographic Information Systems
- Next Generation Internet applications - e.g., large file transfer, quality of service, bandwidth reservation, synchronous service
- On-line intelligent learning and training
- Procurement
- Public health
- Security, privacy and information assurance
- Summarization and semantic analysis of public comment (e.g. issuance of regulations, the Federal Advisory Committee Act process, commentary through the Federal Register)
- Virtual government agencies (cross-organization collaboration, sharing of information, distributed databases)

WHO MAY PROPOSE

Proposals must be in accordance with NSF Grant Proposal Guide NSF 98-2, and incorporate significant participation by at least one Federal agency in the definition and execution of the proposed work. Federal agencies participating in proposals must be fully engaged in the development of the proposal and subsequent project activities. Agencies are encouraged to partner through sharing of facilities, data, and personnel, as well as either joint direct funding with the National Science Foundation or interagency funds transfer to the Foundation, for support of non-Federal project costs. *NSF funds may not be used to support costs incurred by other agencies directly related to carrying out their missions, such as staff, travel,*

and cost of facilities. Inasmuch as NSF does not intend to supplement the budgets of other Federal agencies, NSF will support only the research elements of the work proposed. For the non-research parts of the project, other sources of support must be identified. Proposers are responsible for identifying and addressing in the proposal any constraints by law or regulation on the collection, creation, dissemination or disposition of data, in particular related to their Federal partner agencies. Participation by other sectors (vendors, industry, private research laboratories, state/local government, foundations) as appropriate, is encouraged.

CATEGORIES OF PROPOSALS

1. Standard NSF research projects
2. Domain-specific cross-agency pilot projects or testbeds
3. Planning grants - preparatory to proposals for pilot projects or testbeds, the program will support planning grants of up to $50,000 for one year. These are one-time awards that may be used for preliminary work to determine the feasibility of a proposed line of inquiry.
4. Human-development activities (e.g. sabbaticals for faculty at Federal agencies, student internships at agencies, assignments of Federal employees at universities or vendors)
5. Workshops and other community-building, technology exchange, or clearinghouse mechanisms related to digital government research topics

REQUIRED PROJECT ELEMENTS

- For all proposals:
    - A domain area that is primarily governmental in nature, or where Federal government requirements are unique
    - Integration of domain experts (users, customers) during the project life cycle
- For cross agency pilot project or testbed proposals:
    - Plans for a framework or architecture for the development of application program interfaces, software objects, software re-use, and modularization, to encourage sharing of functionality across projects.
    - Plans for early and regular delivery of partial research products in accordance with a proposed set of milestones.
    - Plans for evaluation, during the project and at its conclusion, by the proposer to determine the usefulness and usability of its research products.
    - Upon project completion, plans to ensure capture of research results; e.g. involvement of potential commercial partners (systems integrators, software vendors), commitments by other organizations for continued funding, etc.

Other project elements might be included depending on the nature of the proposed work, such as user learning and help components, human-centered systems elements (e.g., user interfaces, visualization tools, user interaction metrics), use of non-proprietary or platform-neutral technologies, ability to scale and integrate systems, Web-compatible interfaces, use of collaboration technologies, and integration of educational elements within the project.

CONTEXT

The context of Digital Government research can be obtained from the following reports [Web references for other related reports can be found at http://nii.nist.gov/pubs/pubs.html]:

- "Toward a Digital Government in the 21st Century", supported by the National Science Foundation, the Federal Information Services and Applications Council of the National Science and Technology Council, and the National Center for Research Resources of the National Institutes of Health (http://www.isi.edu/nsf/)
- Access America, a report from the President's Government Information Technology Services Board (http://www.gits.fed.gov)
- Topical reports from the Computer Science and Telecommunications Board of the National Academy of Sciences (http://www2.nas.edu/cstbweb/)
- The Strategic Plan of the Federal Chief Information Officers Council (http://www.cio.fed.gov/)
- Report of the Presidential Commission on Critical Infrastructure Protection (http://www.pccip.gov)
- Report of the Presidential working group - "A Framework for Global Electronic Commerce" (http://www.iitf.nist.gov/electronic_commerce.htm)
- Enhancing Learning and Education Through Technology - A Presidential Memorandum for the Heads of Executive Departments and Agencies - (http://www.pub.whitehouse.gov/WH/Publications/html/Publications.html)

REVIEW PROCESS AND EVALUATION CRITERIA

Proposals will be subject to peer review, in most cases by a panel of experts from multiple sectors, including academia, government agencies, the private sector, and national laboratories. Site visits may be made to clarify issues raised during the review process, and to explore other matters as needed. As with all proposals to NSF, these proposals will be evaluated using the two standard review criteria:

1) The intellectual merit of the proposed activities. Potential considerations may include, depending on the particulars of the proposal:

- How important is the proposed activity to advancing knowledge and understanding with its own field or across different fields?
- How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, quality of prior work will be considered)
- To what extent does the proposed activity suggest and explore creative and original concepts?
- How well conceived and organized is the proposed activity?
- Is there sufficient access to the necessary resources?

2) The broader impacts of the proposed activities. Potential considerations may include, depending on the particulars of the proposal:
    - How well does the activity advance discovery and understanding while promoting teaching, training, and learning?
    - How well does the proposed activity broaden the participation of underrepresented groups (e.g. gender, ethnicity, disability, geographic, etc.)?
    - To what extent will the proposed activity enhance the infrastructure for research and education, such as facilities, instrumentation, networks and partnerships?
    - Will the results of the proposed activity be disseminated broadly to enhance scientific and technological understanding?
    - What may be the benefits of the proposed activity to society?

The following additional evaluation criteria will be employed:

- Feasibility of proposed work
- Potential for impact on Federal information services and facilitation of mission accomplishment
- Degree of in-kind leverage, including personnel provided by project partners, facilities, vendor discounts, and involvement of associated but separately funded projects which will benefit the proposed work.

OTHER TOPICS

Program Funding Level

For FY98, available funding from NSF is $1Million, primarily for workshops and planning grants. In FY99, additional funding has been requested in the President's budget to Congress; funding from other agencies is anticipated (updates on available funding can be obtained from dgpd@nsf.gov, or http://www.cise.nsf.gov). At that time a small number (1-3) of large center-like awards may be made with a mix of other smaller awards; large awards may require the use of cooperative agreements rather than grants.

Balance

In award and funding decisions, the Program will seek a portfolio of activities balanced with respect to:

- Project domains
- Technologies explored
- Involvement of multiple agencies
- User community
- Categories of proposals (as indicated above)

Annual Review

Projects which are initially funded at a level exceeding $500,000 per year for two or more years will have their progress evaluated annually by teams of experts. Funding for the balance of the project term may be revised based on this evaluation.

All publications, reports, data and other output must be prepared in digital form and allow for electronic storage, indexing, searching and retrieval.

AGENCY CONTACTS

The following individuals will act in an ombudsman capacity, and may be contacted for information and identification of potential agency participants. The listing of an agency or individual below does not necessarily imply an agreement to participate as a partner in any proposals.

Cross-Agency Domain Contacts

DOMAIN	NAME	EMAIL	PHONE
Next Generation Internet Applications	William Turnbull - Nat. Oceanic & Atmos. Administration	wturnbull@hpcc.noaa.com	301-713-3573
Fed. Statistical Infrastructure	Cathryn Dippo - Bureau of Labor Statistics	Dippo_C@BLS.GOV	202-606-7372
Crisis Management	Anngienetta Johnson - NASA	anngie.johnson@hq.nasa.gov	202-358-4717
Universal Access	Gary Strong - NSF	gstrong@nsf.gov	703-306-1928
Public Health	MaryJo Deering - Office of Disease Prevention & Hlth Promotion	mdeering@osophs.dhhs.gov	202-260-2652
Geographic Info. Systems	Alan Gaines - NSF	againes@nsf.gov	703-306-1553
Security & Privacy	Dennis Steinauer - NIST	dds@nist.gov	
Social Sciences	William Bainbridge - NSF	wbainbri@nsf.gov	703-306-1756
Cross-Agency Network Infrastructure	Keith Thurston - GSA	keith.thurston@gsa.gov	202-501-3175
Others	Lawrence E. Brandt - NSF	lbrandt@nsf.gov	703-306-1963

Additional Contacts

AGENCY	NAME	E-MAIL	PHONE
Dept. of Housing & Urban Devel.	Gretchen Van Hyning	Gretchen_Van_Hyning@hud.gov	202-708-0614
Defense Tech. Information Cntr.	Carlynn Thompson	cthompson@dtic.mil	703-767-0175
Dept. of Agriculture	Stan Daberkow	daberkow@econ.ag.gov	202-219-0461
Agency for Health Care Policy & Rsrch	Luis Kun	lkun@ahcpr.gov	301-594-1483
Dept. of Interior	Mike Laughon	Mike_Laughon@ios.doi.gov	202-208-5413
Dept. of Education	Keith Stubbs	kstubbs@inet.ed.gov	202-219-1803
Nat. Inst. of Standards & Tech.	Judi Moline	jmoline@nist.gov	301-975-4601
US Patent & Trademark Office	Lawrence Cogut	larry.cogut@uspto.gov	703-305-8685
Nat. Institutes of Health	Richard DuBois	richardd@ep.ncrr.nih.gov	301-435-0758
Dept. of Energy	Pete Salatti	pete.salatti@hq.doe.gov	
Nat. Archives & Records Admin.	Lewis Bellardo	lewis.bellardo@arch1.nara.gov	301-713-6410
Environmental Protection Agency	Joan Novak	novak.joan@epamail.epa.gov	919-541-4545

NOTICE OF INTENT TO PROPOSE

To assist the Program in planning for merit review of proposals, potential proposers are requested, but not required, to send a short (paragraph or two) description of the essential elements of their proposal, including major partners, by email to dgpd@nsf.gov. A notice of intent to propose does not bind the submitter in any way, nor is the submission of a notice required to submit a proposal. Notices of intent will not be reviewed for merit, but will be used to help plan the review.

PROPOSAL FORMAT AND SUBMISSION

Proposals submitted in response to this program should follow the instructions in the Grant Proposal Guide (GPG) (NSF 98-2), using copies of the forms included in the appendices of GPG. All of this material is available on the NSF Web site at http://www.nsf.gov/bfa/cpo/gpg/start.htm

Formal communications for this program competition will be electronic wherever possible. Therefore, proposers are encouraged to submit proposals electronically using the NSF FastLane system for electronic proposal submission and review, available through the World Wide Web on the FastLane home page (http://www.fastlane.nsf.gov). To access the FastLane Proposal Preparation application, your institution needs to be a registered FastLane institution. A list of registered institutions and the FastLane registration form are located on the FastLane home page. For questions or problems concerning submitting a proposal via FastLane, please contact fastlane-comments @nsf.gov.

Proposals must be submitted no later than September 1, for FY1998 submissions, and March 1 for FY1999 and thereafter.

AWARD ADMINISTRATION

Grants awarded as a result of this announcement are administered in accordance with the terms and conditions of NSF GC-1, "Grant General Conditions," or FDP-III, "Federal Demonstration Partnership General Terms and Conditions," depending on the grantee organization. Any Cooperative Agreement resulting from this announcement must comply with NSF GC-1 and Cooperative Agreement General Conditions, CA-1. Copies of these documents are available at no cost from the NSF Publications Clearing House (see next page), via email at pubs@nsf.gov, or via the World-Wide Web at http://www.nsf.gov. More comprehensive information is contained in the NSF Grant Policy Manual (NSF 95-26, July 1995), for sale through the Superintendent of Documents, Government Printing Office, Washington D.C. 20402. The phone number at GPO is (202) 783-3238 for subscription information. The Grant Policy Manual is also available via the World-Wide Web at http://www.nsf.gov

NSF requires prospective new grantees to furnish, upon request by NSF's Division of Grants and Agreements, basic organization and management information that will assist the NSF Grants Officers in assessing their financial and managerial responsibility. These requirements are described in the NSF Grant Policy Manual (July 1995), particularly Chapters IV and V.

ADDITIONAL INFORMATION

The brochure Grant Proposal Guide (NSF 98-2) and NSF Guide to Programs (NSF 97-150) are available at no cost from:

NSF Publications Clearing House
P.O. Box 218
Jessup, MD 20794-0218
301-947-2722

These documents, along with NSF's Grant Policy Manual, can also be obtained on the NSF's Web site at http://www.nsf.gov

For more information on the Digital Government Program, contact:

Program Director
Digital Government Program
Division of Experimental and Integrative Activities, Room 1160
National Science Foundation
4201 Wilson Blvd.
Arlington, VA 22230

Electronic mail address: dgpd@nsf.gov
Telephone number: (703) 306-1980

OMB 3145-0058
P.T. 34,
K.W. 1004000, 0600000

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Electronic Dissemination Only

The Foundation provides awards for research and educational activities in the sciences and engineering. The awardee is wholly responsible for the conduct of such research and preparation of the results for publication. The Foundation, therefore, does not assume responsibility for the research findings or their interpretation.

The Foundation welcomes proposals from all qualified scientists and engineers and strongly encourages women, minorities, and persons with disabilities to compete fully in any of the research and research-related programs described here. In accordance with federal statutes and regulations and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, denied the benefits of, or be subject to discrimination under any program or activity receiving financial assistance from the National Science Foundation.

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF projects. See the program announcement or contact the program coordinator at (703) 306-1636.

The National Science Foundation has TDD (Telephonic Device for the Deaf) capability, which enables individuals with hearing impairment to communicate with the Foundation about NSF programs, employment, or general information. To access NSF TDD dial (703) 306-0090; for FIRS, 1-800-877-8339.

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the application review process; to applicant institutions/grantees to provide or obtain data regarding the application review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers as necessary to complete assigned work; to other government agencies needing information as part of the review process or in order to coordinate programs; and to another Federal agency, court or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:Gail A. McHenry, Reports Clearance Officer, Information Dissemination Branch, DAS, National Science Foundation, 4201 Wilson Blvd., Arlington, VA 22230

Programs described in this publication are in Category 47.070 (Computer and Information Science and Engineering) in the Catalog of Federal Domestic Assistance.